



AF

THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE HONORABLE BOARD OF PATENT APPEALS AND INTERFERENCES

In re the Application of

John M. Stropki, et al.

Application No.: 10/815,536

Examiner: K. P. Kerns

Filed: April 1, 2004

Docket No.: LEE 2 00358

For: EXTENSION LIFT TRUCK MODIFICATION

BRIEF ON APPEAL

Appeal from Group 1725

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I. REAL PARTY IN INTEREST

The real party in interest for this appeal and the present application is Lincoln Global, Inc., by way of an Assignment recorded in the U.S. Patent and Trademark Office at Reel 015193, Frame 0136.

II. RELATED APPEALS AND INTERFERENCES

There are no prior or pending appeals, interferences or judicial proceedings, known to Appellant, Appellant's representative, or the Assignee, that may be related to, or which will directly affect or be directly affected by or have a bearing upon the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 44-47 and 50 are on appeal.

Claims 44-47 and 50 are pending.

Claims 44-47 and 50 are rejected.

Claims 1-43 and 52-57 are withdrawn from consideration.

Claims 48, 49 and 51 are canceled.

IV. STATUS OF AMENDMENTS

No Amendment After Final Rejection has been filed.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The claims of this patent application do not stand or fall together. Each claim is to be considered by the Board in view of the arguments and comments submitted herein.

The invention of claim 44 is directed to an electric arc welding apparatus. The welding apparatus comprises: a welding station 44; a battery for providing a DC battery voltage 54; and a high switching speed converter 50 coupled to the battery for converting the DC battery voltage to a signal conditioned for welding (see FIG. 3 and page 9, lines 13-19). The high switching speed converter includes a pulse width modulator 66 that at least partially controls said signal conditioned for welding to a welding electrode E and a waveform generator 72 that at least partially controls said pulse width modulator (see page 9, lines 19-23). The high switching speed converter creates a series of current pulses that constitute a welding cycle representative of a current waveform and the pulse width modulator controls a current pulse width of a plurality of said current pulse (see page 10, lines 7-17). Further, the welding station, the battery and the high switching speed converter are movable on a wheeled carriage 20 (see FIG. 1 and page 8, lines 3-7).

Claim 45 adds that the battery comprises a 48 volt battery pack (see page 6, lines 13-15).

Claim 46 adds that the waveform generator drives the pulse width modulator at a frequency of 20 kHz (see page 10, lines 3-5).

Claim 47 adds that the battery is supplied with recharging power by an on-board battery charger and that the battery charger is operative to be plugged into an external AC power source via an extension cord (see page 11, lines 1-4).

Claim 50 adds that the high switching speed converter comprises a DC down chopper 52 (see FIG. 3 and page 9, lines 13-15).

## VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The following grounds of rejection are presented for review:

Claims 44-47 and 50 are rejected under 35 U.S.C. §103(a) as being unpatentable over either GB 2 316 244 or Kikuchi et al (US 5,250,786) in view of Baker (US 5,864,116) and further in view of DE 26 50 522.

## VII. ARGUMENT

The present invention contemplates a new and improved arc welder system that resolves many of difficulties in the prior art by incorporating an arc welder with a DC input into a movable carriage, such as a DC-powered lift, and using the movable carriage's DC power source to supply power to the welder.

### A. Claims 44-47 and 50 Would Not Have Been Obvious Over GB 2 316 244 or Kikuchi in View of Baker and Further in View of DE 26 50 522

#### 1. Claims 44-47 and 50

Claims 44-47 and 50 have been rejected under 35 U.S.C. 103(a) as being unpatentable over GB 2 316 244 or Kikuchi et al. (US 5,250,786) in view of Baker (US 5,864,116) and further in view of DE 26 50 522.

The Examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness (MPEP § 2142). To establish a *prima facie* case of obviousness, *inter alia*, there must be some suggestion or motivation, either in the references themselves or in the art, to modify the reference or to combine reference teachings (MPEP § 2143). There are three possible sources for a motivation to combine references: (i) the nature of the problem to be solved, (ii) the teachings of the prior art, and (iii) the knowledge of persons of ordinary skill in the art. *In re Rouffet*, 149 F.3d 1350, 1357 (Fed.Cir. 1998); MPEP § 2143.01. Obviousness can be established by combining or modifying the teachings of the prior art to produce the claimed

invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art (MPEP § 2143.01). The Examiner has not sufficiently identified explicit motivation to combine the references for claims 44-47 and 50 in the final Office Action.

Claim 44 covers an electric arc welding apparatus comprising a welding station, a battery for providing a DC battery voltage and a high switching speed converter. Further, the high switching speed converter includes a pulse width modulator that at least partially controls the signal conditioned for welding and a waveform generator that at least partially controls the pulse width modulator. Thus, the high switching speed converter creates a series of current pulses that constitute a welding cycle representative of a current waveform and the pulse width modulator controls a current pulse width of a plurality of current pulses. In addition, the electric arc welding apparatus is movable on a wheeled carriage.

This novel approach, as presented in claim 44, differs from both GB 2 316 244 and Kikuchi et al. (US 5,250,786) in several respects.

GB 2 316 244 discloses an electrical welding apparatus comprising a rechargeable battery, means for recharging the battery, a charge storage means, an electronic switch and control means for turning the switch on and off. However, this reference does not disclose an electric arc welding apparatus incorporating a high switching speed converter with the features noted above. For instance, there is no mention of a pulse width modulator that at least partially controls the signal conditioned for welding or a waveform generator that at least partially controls the pulse width

modulator. Further, this reference does not disclose an electric arc welding apparatus that is movable on a wheeled carriage.

Kikuchi discloses a dc arc welding apparatus in which both an engine-driven welder and a battery-driven welder are combined together. However, as with the other reference, an electric arc welding apparatus incorporating a high switching speed converter with the features noted above is not disclosed. For instance, there is no suggestion of a waveform generator that at least partially controls the pulse width modulator. Further, Kikuchi does not disclose an electric arc welding apparatus that is movable on a wheeled carriage.

Moreover, the other references cited by the Examiner fail to overcome these deficiencies.

Furthermore, the Examiner has asserted that it would have been obvious to combine certain aspects of DE 26 50 522 (e.g., the rollable arc welding trolley for inert gas welding) and Baker (US 5,864,116) (e.g., the DC chopper with inductance control for welding) to produce the claimed invention. However, the Examiner has provided no specific reference, or other evidence, to support his conclusion that it would be obvious to one skilled in the art to modify the welder of GB 2 316 244 or Kikuchi with the teachings of DE 26 50 522 and Baker, aside from conclusory statements such as the ones found on page 4, third paragraph, and on page 5, first full paragraph, of the final Office Action. Applicants assert that the Examiner has impermissibly concluded that claim 44 is obvious in view of a combination of GB 2 316 244, Kikuchi, DE 26 50 522 and Baker without any legitimate support on the record in accordance with the obligations imposed under MPEP §2144.03. That is, the Examiner has failed to provide one or more references or other suitable evidence showing that one skilled in the art

would be motivated to modify the teachings of GB 2 316 244 or Kikuchi with the teachings of DE 26 50 522 and Baker.

A *prima facie* case of obviousness is not established absent proper motivation. Simply because certain teachings of DE 26 50 522 and Baker *could* be used in other welders, a motivation to modify GB 2 316 244 or Kikuchi to meet the limitations of claim 44 is not formed. Moreover, according to MPEP §2144.01, the “fact that the claimed invention is within the capabilities of one of ordinary skill in the art is not sufficient by itself to establish *prima facie* obviousness.” Merely because the claimed elements are individually found in the prior art, it does not necessarily follow that it would be obvious to combine the elements from different prior art references. See MPEP §2141.01, citing *Ex Parte Levingood*, 28 USPQ2d 1300 (Bd. of Pat. App. & Int. 1993).

Consequently, absent a motivation to combine and modify GB 2 316 244 or Kikuchi with the teachings of DE 26 50 522 and Baker, it is irrelevant that the elements and/or limitations may be individually or separately known in the prior art. Clearly, the Examiner is motivated to combine these teachings for no other reason than to arrive at the claimed invention. This is a classic example of impermissible hindsight. Accordingly, claim 44, along with claims 45-47 and 50 which depend therefrom, are patentably distinct over the references of record for the reasons discussed herein.

## 2. Claim 50

Claim 50 adds a number of features to the electric arc welding apparatus of claim 44, including that the battery comprises a 48 volt battery pack, that the waveform generator drives the pulse width modulator at a frequency of 20 kHz, that the battery is supplied with recharging power by an on-board battery charger and that the battery



charger is operative to be plugged into an external AC power source via an extension cord and that the high switching speed converter comprises a DC down chopper.

Neither GB 2 316 244 nor Kikuchi discloses an electric arc welding apparatus incorporating a high switching speed converter with the features noted above, including the DC down chopper. Moreover, the other references cited by the Examiner fail to overcome these deficiencies.

Furthermore, the Examiner has asserted that it would have been obvious to combine certain aspects of DE 26 50 522 (rollable arc welding trolley for inert gas welding) and Baker (US 5,864,116) (DC chopper with inductance control for welding) to produce the claimed invention. However, the Examiner has provided no specific reference, or other evidence, to support his conclusion that it would be obvious to one skilled in the art to modify the welder of GB 2 316 244 or Kikuchi with the teachings of DE 26 50 522 and Baker, aside from conclusory statements such as the ones found on page 5, last paragraph, and on page 6, last paragraph, of the first Office Action. Applicants assert that the Examiner has impermissibly concluded that claim 50 is obvious in view of a combination of GB 2 316 244, Kikuchi, DE 26 50 522 and Baker without any legitimate support on the record in accordance with the obligations imposed under MPEP §2144.03. That is, the Examiner has failed to provide one or more references or other suitable evidence showing that one skilled in the art would be motivated to modify the teachings of GB 2 316 244 or Kikuchi with the teachings of DE 26 50 522 and Baker.

A *prima facie* case of obviousness is not established absent proper motivation. Simply because certain teachings of DE 26 50 522 and Baker *could* be used in other welders, a motivation to modify GB 2 316 244 or Kikuchi to meet the limitations of claim

50 is not formed. Moreover, according to MPEP §2144.01, the “fact that the claimed invention is within the capabilities of one of ordinary skill in the art is not sufficient by itself to establish prima facie obviousness.” Merely because the claimed elements are individually found in the prior art, it does not necessarily follow that it would be obvious to combine the elements from different prior art references. See MPEP §2141.01, citing *Ex Parte Levingood*, 28 USPQ2d 1300 (Bd. of Pat. App. & Int. 1993).

Consequently, absent a motivation to combine and modify GB 2 316 244 or Kikuchi with the teachings of DE 26 50 522 and Baker, it is irrelevant that the elements and/or limitations may be individually or separately known in the prior art. Clearly, the Examiner is motivated to combine these teachings for no other reason than to arrive at the claimed invention. This is a classic example of impermissible hindsight. Accordingly, claim 50 is patentably distinct over the references of record for the reasons discussed herein.

**CONCLUSION**

For all of the reasons discussed above, it is respectfully submitted that the rejections are in error and that claims 44-47 and 50 are in condition for allowance. For all of the above reasons, Appellants respectfully request this Honorable Board to reverse the rejections of claims 44-47 and 50.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'J. S. Zanghi', written over a horizontal line.

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**APPENDICES**

**VIII. CLAIMS APPENDIX**

Claims involved in the Appeal are as follows:

1. (Withdrawn) An apparatus for welding, said apparatus comprising:  
a lift mechanism for lifting a personnel platform attached to an end of said lift mechanism;  
a drive system for moving said apparatus, said drive system including a DC power source;  
a set of controls mounted on said platform for controlling said drive system and said lift mechanism; and  
an electric arc welding system mounted on said personnel platform for creating a DC welding arc between an electrode and a workpiece, said welding system being powered by said DC power source.
2. (Withdrawn) The apparatus as defined in claim 1, wherein said DC power source of said drive system comprises a 48 volt battery pack.
3. (Withdrawn) The apparatus as defined in claim 1, wherein said DC power source is supplied with recharging power by an on-board battery charger, said battery charger operative to be plugged into an external AC power source via an extension cord.
4. (Withdrawn) The apparatus as defined in claim 1, wherein said set of controls is integrated with said welder into a single unit.
5. (Withdrawn) The apparatus as defined in claim 1, wherein said electric arc welding system has a power supply that supplies welding current to said electrode, said power supply comprising a DC down chopper.

6. (Withdrawn) The apparatus as defined in claim 5, wherein said DC down chopper includes a DC input source, said DC input source comprising said DC power source of said drive system.

7. (Withdrawn) The apparatus as defined in claim 1, wherein said electric arc welding system has a power supply that supplies welding current to said electrode, said power supply including a pulse width modulator that at least partially controls said welding current to said electrode and a waveform generator that at least partially controls said pulse width modulator, said power supply creating a series of current pulses that constitute a welding cycle representative of a current waveform, said pulse width modulator controlling a current pulse width of a plurality of said current pulses.

8. (Withdrawn) The apparatus as defined in claim 7, wherein said power supply comprises a DC down chopper.

9. (Withdrawn) The apparatus as defined in claim 8, wherein said DC down chopper includes a DC input source, said DC input source comprising said DC power source of said drive system.

10. (Withdrawn) The apparatus as defined in claim 9, wherein said DC power source of said drive system comprises a 48 volt battery pack.

11. (Withdrawn) The apparatus as defined in claim 7, wherein said waveform generator drives said pulse width modulator at a frequency of 20 kHz.

12. (Withdrawn) An apparatus for welding, said apparatus comprising:  
a Z-shaped articulating boom lift operative to lift a personnel platform attached to a load-receiving end of said boom lift, said personnel platform comprising a cage and a standing base;

a drive system operative to move said apparatus, said drive system comprising a drive motor and a DC power system;

a set of controls mounted in said cage operative to control said drive system and said articulating boom lift; and

an electric arc welding system mounted in said cage and operative to create a DC welding arc between an electrode and a workpiece, said welding system being powered by said DC power system.

13. (Withdrawn) The apparatus as defined in claim 12, wherein said DC power system comprises a 48 volt battery pack.

14. (Withdrawn) The apparatus as defined in claim 12, wherein said DC power system is supplied with recharging power by an on-board battery charger, said battery charger operative to be plugged into an external AC power source via an extension cord.

15. (Withdrawn) The apparatus as defined in claim 12, wherein said set of controls is integrated with said welder into a single unit.

16. (Withdrawn) The apparatus as defined in claim 12, wherein said electric arc welding system has a power supply that supplies welding current to said electrode, said power supply comprising a DC down chopper.

17. (Withdrawn) The apparatus as defined in claim 16, wherein said DC down chopper includes a DC input source, said DC input source comprising said DC power system of said drive system.

18. (Withdrawn) The apparatus as defined in claim 12, wherein said electric arc welding system has a power supply that supplies welding current to said electrode, said power supply including a pulse width modulator that at least partially controls said

welding current to said welding electrode and a waveform generator that at least partially controls said pulse width modulator, said power supply creating a series of current pulses that constitute a welding cycle representative of a current waveform, said pulse width modulator controlling a current pulse width of a plurality of said current pulses.

19. (Withdrawn) The apparatus as defined in claim 18, wherein said power supply comprises a DC down chopper.

20. (Withdrawn) The apparatus as defined in claim 19, wherein said DC down chopper includes a DC input source, said DC input source comprising said DC power system of said drive system.

21. (Withdrawn) The apparatus as defined in claim 20, wherein said DC power system comprises a 48 volt battery pack.

22. (Withdrawn) The apparatus as defined in claim 18, wherein said waveform generator drives said pulse width modulator at a frequency of 20 kHz.

23. (Withdrawn) An apparatus for welding, said apparatus comprising:  
a scissor lift operative to lift a personnel platform attached to a load-receiving end of said scissor lift, said personnel platform comprising a cage and a standing base;  
a drive system operative to move said apparatus, said drive system comprising a drive motor and a DC power system;  
a set of controls mounted in said cage and operative to control said drive system and said scissor lift; and  
an electric arc welding system mounted in said cage and operative to create a DC welding arc between an electrode and a workpiece, said welding system being powered by o said DC power system.

24. (Withdrawn) The apparatus as defined in claim 23, wherein said DC power system comprises a 48 volt battery pack.

25. (Withdrawn) The apparatus as defined in claim 23, wherein said DC power system is supplied with recharging power by an on-board battery charger, said battery charger operative to be plugged into an external AC power source via an extension cord.

26. (Withdrawn) The apparatus as defined in claim 23, wherein said set of controls is integrated with said welder into a single unit.

27. (Withdrawn) The apparatus as defined in claim 23, wherein said electric arc welding system has a power supply that supplies welding current to said electrode, said power supply comprising a DC down chopper.

28. (Withdrawn) The apparatus as defined in claim 27, wherein said DC down chopper includes a DC input source, said DC input source comprising said DC power system of said drive system.

29. (Withdrawn) The apparatus as defined in claim 23, wherein said electric arc welding system has a power supply that supplies welding current to said electrode, said power supply including a pulse width modulator that at least partially controls said welding current to said welding electrode and a waveform generator that at least partially controls said pulse width modulator, said power supply creating a series of current pulses that constitute a welding cycle representative of a current waveform, said pulse width modulator controlling a current pulse width of a plurality of said current pulses.

30. (Withdrawn) The apparatus as defined in claim 29, wherein said power supply comprises a DC down chopper.



31. (Withdrawn) The apparatus as defined in claim 30, wherein said DC down chopper includes a DC input source, said DC input source comprising said DC power system of said drive system.

32. (Withdrawn) The apparatus as defined in claim 31, wherein said DC power system comprises a 48 volt battery pack.

33. (Withdrawn) The apparatus as defined in claim 29, wherein said waveform generator drives said pulse width modulator at a frequency of 20 kHz.

34. (Withdrawn) A mobile welding apparatus, said apparatus comprising:  
a vehicle having a DC power source, said vehicle comprising an industrial vehicle or a construction vehicle; and

an electric arc welding system mounted on said vehicle for creating a DC welding arc between an electrode and a workpiece, said welding system being powered by said DC power source.

35. (Withdrawn) The apparatus as defined in claim 34, wherein said DC power source comprises a 48 volt battery pack.

36. (Withdrawn) The apparatus as defined in claim 34, wherein said DC power source is supplied with recharging power by an on-board battery charger, said battery charger operative to be plugged into an external AC power source via an extension cord.

37. (Withdrawn) The apparatus as defined in claim 34, wherein said electric arc welding system has a power supply that supplies welding current to said electrode, said power supply comprising a DC down chopper.

38. (Withdrawn) The apparatus as defined in claim 37, wherein said DC down chopper includes a DC input source, said DC input source comprising said DC power source of said drive system.

39. (Withdrawn) The apparatus as defined in claim 34, wherein said electric arc welding system has a power supply that supplies welding current to said electrode, said power supply including a pulse width modulator that at least partially controls said welding current to said electrode and a waveform generator that at least partially controls said pulse width modulator, said power supply creating a series of current pulses that constitute a welding cycle representative of a current waveform, said pulse width modulator controlling a current pulse width of a plurality of said current pulses.

40. (Withdrawn) The apparatus as defined in claim 39, wherein said power supply comprises a DC down chopper.

41. (Withdrawn) The apparatus as defined in claim 40, wherein said DC down chopper includes a DC input source, said DC input source comprising said DC power source of said drive system.

42. (Withdrawn) The apparatus as defined in claim 41, wherein said DC power source of said drive system comprises a 48 volt battery pack.

43. (Withdrawn) The apparatus as defined in claim 42, wherein said waveform generator drives said pulse width modulator at a frequency of 20 kHz.

44. (Previously Presented) An electric arc welding apparatus comprising:  
a welding station;  
a battery for providing a DC battery voltage; and  
a high switching speed converter coupled to said battery for converting said DC battery voltage to a signal conditioned for welding,

wherein said high switching speed converter includes a pulse width modulator that at least partially controls said signal conditioned for welding to a welding electrode, and a waveform generator that at least partially controls said pulse width modulator, said high switching speed converter creating a series of current pulses that constitute a welding cycle representative of a current waveform, said pulse width modulator controlling a current pulse width of a plurality of said current pulses, and wherein said welding station, said battery and said high switching speed converter are movable on a wheeled carriage.

45. (Previously Presented) The apparatus as defined in claim 44 wherein said battery comprises a 48 volt battery pack.

46. (Previously Presented) The apparatus as defined in claim 45 wherein said waveform generator drives said pulse width modulator at a frequency of 20 kHz.

47. (Previously Presented) The apparatus as defined in claim 46 wherein wherein said battery is supplied with recharging power by an on-board battery charger, said battery charger being operative to be plugged into an external AC power source via an extension cord.

48. (Canceled)

49. (Canceled)

50. (Previously Presented) The apparatus as defined in claim 47 wherein said high switching speed converter comprises a DC down chopper.

51. (Canceled)

52. (Withdrawn) A device for electric arc welding, said device comprising:  
a battery;  
a battery charger;

a welder driven by said battery; and

a wheeled carriage supporting said battery, said battery charger and said welder.

53. (Withdrawn) The device as defined in claim 52, wherein said battery charger is operative to be plugged into an external AC power source via an extension cord.

54. (Withdrawn) The device as defined in claim 53, wherein said welder includes a power supply that supplies welding current between an electrode and a workpiece.

55. (Withdrawn) The device as defined in claim 52, wherein said welder includes a power supply that supplies welding current between an electrode and a workpiece.

56. (Withdrawn) The device as defined in claim 55, wherein said power supply comprises a DC down chopper.

57. (Withdrawn) The device as defined in claim 56, wherein said power supply includes a pulse width modulator that at least partially controls said welding current to said electrode and a waveform generator that at least partially controls said pulse width modulator, said power supply creating a series of current pulses that constitute a welding cycle representative of a current waveform, said pulse width modulator controlling a current pulse width of a plurality of said current pulses.

IX. EVIDENCE APPENDIX

NONE

X. RELATED PROCEEDINGS APPENDIX  
NONE

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